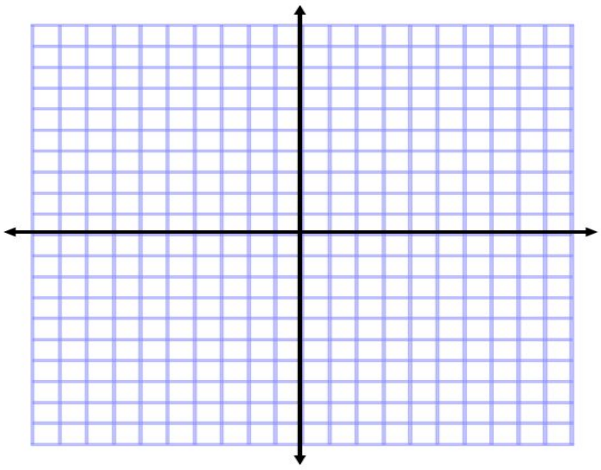
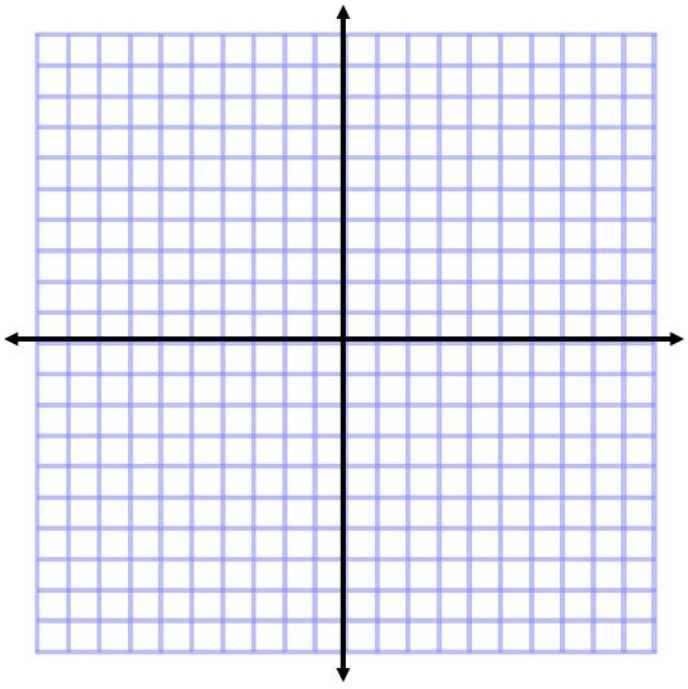
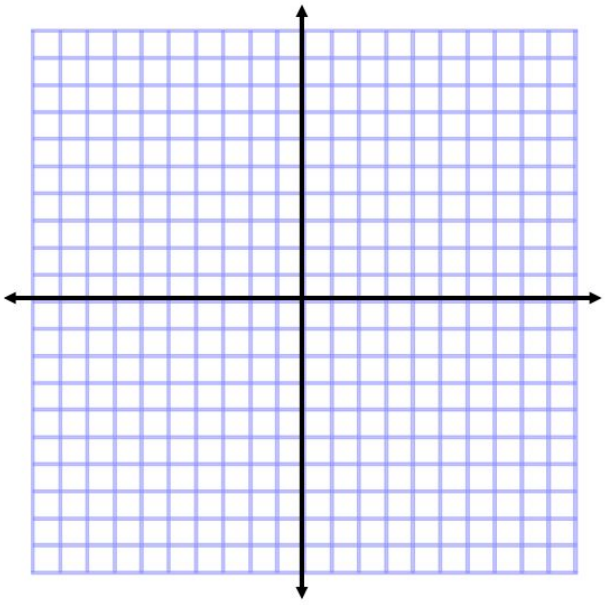
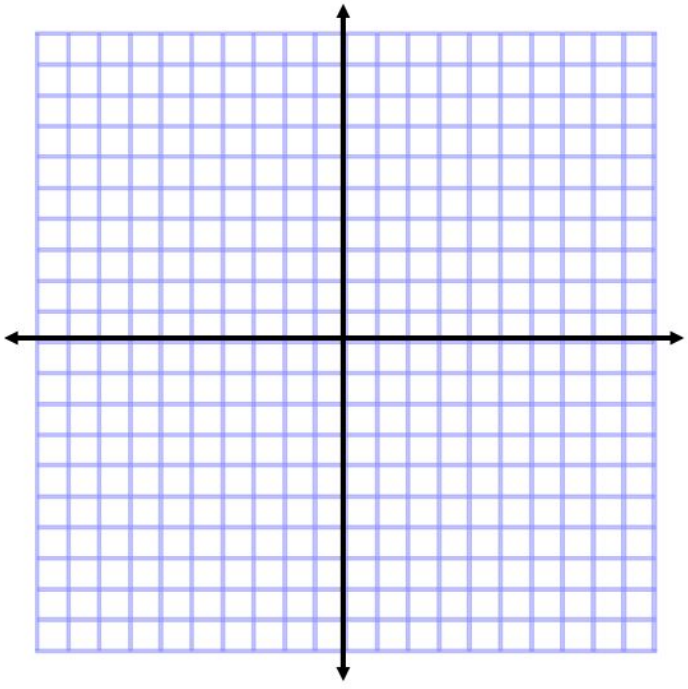
Name: _____ **Date:** _____

Practice Quest: Linear Inequalities, Mixture Current/Wind WPs

1. Please graph the linear inequality. $x - 4y > -4$	**Test Points: You must test TWO points (one on each side of the boundary line).**
	**Test: (____, _____)** **Test: (____, _____)**
2. Please graph the system of linear inequalities. BE CLEAR AS TO WHERE THE SOLUTION ZONE IS. $y > x - 6$ and $2x + 3y \leq -6$ 	**Test Points: You must test one point for each inequality. Show your work.** **Test: (____, _____)** **Test: (____, _____)**

3. Please graph the system of linear inequalities. BE CLEAR AS TO WHERE THE SOLUTION ZONE IS. $y > -1/2x + 4$ and $y < -1/2x - 2$ 	**Test Points: You must test one point for each inequality. Show your work.** **Test: (____, _____)** **Test: (____, _____)**
4. Please graph the system of linear inequalities. BE CLEAR AS TO WHERE THE SOLUTION ZONE IS. $x \geq -2$ and $y < 1$ 	**Test Points: You must test one point for each inequality. Show your work.** **Test: (____, _____)** **Test: (____, _____)**

5. Please answer in complete sentences using algebraic terms. Echo the prompt and avoid vague words.

a. When solving a system of linear inequalities, where does the solution lie?

_____

_____

_____

_____

_____

_____

b. Is the point (1, 3) a solution of the system $x + y \geq -2$ and $y < 3x$? Explain.

_____

_____

_____

_____

_____

c. Given the inequality: $y > 5x + 6$, is the boundary line $y = 5x + 6$ part of the solution to the inequality? Explain.

_____

_____

_____

_____

_____

6. Nate and Luke are paddling a canoe along the Potomac River. They first paddle upstream for twenty-four miles and the trip takes them eight hours. The twenty-four miles back downstream takes them six hours. What was their paddling speed? the speed of the current? (Assume they paddle at the same rate and that the current is the same.)

a. Annotate the word problem, then define variables that make sense for the situation.

b. Write a system of linear equations.

c. Solve the system. Note: you must solve this problem algebraically, using a system.

d. Check your work via substitution and reality.

Substitution Check	Reality Check

e. Write your answers in a complete sentence.

7. Gabby and Max are creating the perfect pumpkin pie mixture, which they believe is sixty percent pumpkin. They wants twenty ounces of the mixture to make the pie. Gabby has forty ounces of seventy percent pumpkin mixture and Owen has fifty ounces of forty percent pumpkin mixture. How many ounces of Gabby's mixture should they use? How many ounces of Owen's?

a. Annotate the word problem, then predict: Whose mixture will they need more of?

b. Define variables that make sense for the situation.

c. Write a system of linear equations.

d. Solve the system. Note: you must solve this problem algebraically, using a system.

e. Check your work via substitution and reality.

Substitution Check	Reality Check (Does it match with your prediction? Does it make sense?)

f. Write your answers in a complete sentence.